



SEQUENCE LISTING

<110> FIEBIG, UWE
SCHMOLKE, MIRCO
DENNER, JOACHIM
KURTH, REINHARDT
KARLAS, ALEXANDER

<120> INDUCTION OF ANTIVIRAL NEUTRALIZING ANTIBODIES IN
HUMANS AND ANIMALS

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<141> 2006-11-20

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<151> 2004-08-26

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<151> 2003-08-26

<150> 60/500,699
<151> 2003-09-08

<160> 135

<170> PatentIn version 3.5

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<220>
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peptide

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Gln Ala Arg Gln Leu Leu Ser Asp Ile Val Gln Gln Gln
1 5 10

<210> 2
<211> 13
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<220>
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peptide

<400> 2
Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn
1 5 10

<210> 3
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<220>
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 peptide

<400> 3
 Gly Ala Ser Val Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Asp
 1 5 10 15

Ile Val Gln Gln Gln
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<210> 4
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 <213> Artificial Sequence

<220>
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 peptide

<400> 4
 Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Asn
 1 5 10 15

Trp Leu Trp Tyr
 20

<210> 5
 <211> 24
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<220>
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 peptide

<400> 5
 Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val Thr Leu Thr
 1 5 10 15

Val Gln Ala Arg Leu Leu Leu Ser
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<210> 6
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 <212> PRT
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<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 6

Asn	Glu	Gln	Glu	Leu	Leu	Glu	Leu	Asp	Lys	Trp	Ala	Ser	Leu	Trp	Asn
1				5					10					15	

Trp	Phe	Asp	Ile	Thr	Asn	Trp	Leu
			20				

<210> 7

<211> 28

<212> PRT

<213> Artificial Sequence

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peptide

<400> 7

Phe	Leu	Gly	Phe	Leu	Gly	Ala	Ala	Gly	Ser	Thr	Met	Gly	Ala	Ala	Ser
1				5					10					15	

Ile	Thr	Leu	Thr	Val	Gln	Ala	Arg	Gln	Leu	Leu	Ser
			20					25			

<210> 8

<211> 28

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<223> Description of Artificial Sequence: Synthetic
peptide

<400> 8

Phe	Leu	Gly	Phe	Leu	Gly	Ala	Ala	Gly	Ser	Thr	Met	Gly	Ala	Ala	Ser
1				5					10					15	

Met	Thr	Leu	Thr	Val	Gln	Ala	Arg	Gln	Leu	Leu	Ser
			20					25			

<210> 9

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peptide

<400> 9

Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser
1 5 10 15

Leu Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser
20 25

<210> 10

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peptide

<400> 10

Leu Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser
1 5 10 15

Ile Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser
20 25

<210> 11

<211> 28

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peptide

<400> 11

Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser
1 5 10 15

Ile Thr Leu Thr Val Gln Val Arg Gln Leu Leu Ser
20 25

<210> 12

<211> 28

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peptide

<400> 12

Phe Leu Gly Val Leu Ser Ala Ala Gly Ser Thr Met Gly Ala Ala Ala
1 5 10 15

Thr Ala Leu Thr Val Gln Thr His Thr Leu Met Lys
20 25

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      peptide
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<400> 13
Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu Trp Asn
1 5 10 15

Trp Phe Asp Ile Thr Asn Trp Leu Trp Tyr Ile Lys
20 25

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<400> 14
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1 5 10 15

Trp Phe Asp Ile Ser Asn Trp Leu Trp Tyr Ile Lys
20 25

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<210> 15
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<220>
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<400> 15
Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp Ala Asn Leu Trp Asn
1 5 10 15

Trp Phe Asp Ile Thr Asn Trp Leu Trp Tyr Ile Arg
20 25

<210> 16
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<400> 16
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 1 5 10 15

Trp Phe Asp Ile Thr Asn Trp Leu Trp Tyr Ile Lys
 20 25

<210> 17
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 <212> PRT
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<220>
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<400> 17
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 1 5 10 15

Trp Phe Asp Ile Thr Asn Trp Leu Trp Tyr Ile Lys
 20 25

<210> 18
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<220>
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 peptide

<400> 18
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 1 5 10 15

Trp Phe Ser Ile Thr Gln Trp Leu Trp Tyr Ile Lys
 20 25

<210> 19
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<400> 19
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 1 5 10 15

Trp Phe Asp Ile Ser Asn Trp Leu Trp Tyr Ile Lys
 20 25

<210> 20
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<400> 20
 Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp Asp Asn Leu Trp Ser
 1 5 10 15

Trp Phe Ser Ile Thr Asn Trp Leu Trp Tyr Ile Lys
 20 25

<210> 21
 <211> 28
 <212> PRT
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<220>
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<400> 21
 Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu Trp Asn
 1 5 10 15

Trp Phe Asp Ile Thr Lys Trp Leu Trp Tyr Ile Lys
 20 25

<210> 22
 <211> 28
 <212> PRT
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<223> Description of Artificial Sequence: Synthetic peptide

<400> 22

Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp Ala Ser Leu Trp Asn
1 5 10 15

Trp Phe Ser Ile Thr Asn Trp Leu Trp Tyr Ile Lys
20 25

<210> 23

<211> 28

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<223> Description of Artificial Sequence: Synthetic peptide

<400> 23

Asn Glu Lys Lys Leu Leu Glu Leu Asp Glu Trp Ala Ser Ile Trp Asn
1 5 10 15

Trp Leu Asp Ile Thr Lys Trp Leu Trp Tyr Ile Lys
20 25

<210> 24

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 24

Ala Val Gly Leu Ala Ile Phe Leu Leu Val Leu Ala Ile Met Ala Ile
1 5 10 15

Thr Ser Ser Leu Val Ala Ala Thr Thr Leu Val Asn Gln His Thr Thr
20 25 30

Ala Lys Val
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<210> 25

<211> 33

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<223> Description of Artificial Sequence: Synthetic
peptide

<400> 25

Ser Leu Ser Asp Thr Gln Asp Thr Phe Gly Leu Glu Thr Ser Ile Phe
1 5 10 15

Asp His Leu Val Gln Leu Phe Asp Trp Thr Ser Trp Lys Asp Trp Ile
20 25 30

Lys

<210> 26

<211> 41

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peptide

<400> 26

Gly Val Gly Leu Val Ile Met Leu Val Ile Met Ala Ile Val Ala Ala
1 5 10 15

Ala Gly Ala Ser Leu Gly Val Ala Asn Ala Ile Gln Gln Ser Tyr Thr
20 25 30

Lys Ala Ala Val Gln Thr Leu Ala Asn
35 40

<210> 27

<211> 36

<212> PRT

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peptide

<400> 27

Ala Met Thr Gln Leu Ala Glu Glu Gln Ala Arg Arg Ile Pro Glu Val
1 5 10 15

Trp Glu Ser Leu Lys Asp Val Phe Asp Trp Ser Gly Trp Phe Ser Trp
20 25 30

Leu Lys Tyr Ile
35

<210> 28
<211> 39
<212> PRT
<213> Artificial Sequence

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peptide

<400> 28
Phe Gly Ile Ser Ala Ile Val Ala Ala Ile Val Ala Ala Thr Ala Ile
1 5 10 15

Ala Arg Ser Ala Thr Met Ser Tyr Val Ala Leu Thr Glu Val Asn Lys
20 25 30

Ile Met Glu Val Gln Asn His
35

<210> 29
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 29
Leu Ala Gln Ser Met Ile Thr Phe Asn Thr Pro Asp Ser Ile Ala Gln
1 5 10 15

Phe Gly Lys Asp Leu Trp Ser His Ile Gly Asn Trp Ile Pro Gly Leu
20 25 30

Gly Ala Ser Ile Ile Lys Tyr
35

<210> 30
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<223> Description of Artificial Sequence: Synthetic
peptide

<400> 30
 Ser Ser Ser Tyr Ser Gly Thr Lys Met Ala Cys Pro Ser Asn Arg Gly
 1 5 10 15

Ile Leu Arg Asn Trp Tyr Asn Pro Val Ala Gly Leu Arg Gln Ser Leu
 20 25 30

Glu Gln Tyr Gln Val Val Lys Gln Pro Asp Tyr Leu Leu Val Pro Glu
 35 40 45

<210> 31
 <211> 35
 <212> PRT
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<400> 31
 Met Asp Ile Glu Gln Asn Asn Val Gln Gly Lys Ile Gly Ile Gln Gln
 1 5 10 15

Leu Gln Lys Trp Glu Asp Trp Val Arg Trp Ile Gly Asn Ile Pro Gln
 20 25 30

Tyr Leu Lys
 35

<210> 32
 <211> 49
 <212> PRT
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 peptide

<400> 32
 Gly Ile Gly Leu Val Ile Val Leu Ala Ile Met Ala Ile Ile Ala Ala
 1 5 10 15

Ala Gly Ala Gly Leu Gly Val Ala Asn Ala Val Gln Gln Ser Ser Tyr
 20 25 30

Thr Arg Thr Ala Val Gln Ser Leu Ala Asn Ala Thr Ala Ala Gln Gln
 35 40 45

Asn

<210> 33
 <211> 37
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<400> 33
 Gln Val Gln Ile Ala Gln Arg Asp Ala Gln Arg Ile Pro Asp Val Trp
 1 5 10 15

Lys Ala Leu Gln Glu Ala Phe Asp Trp Ser Gly Trp Phe Ser Trp Leu
 20 25 30

Lys Tyr Ile Pro Trp
 35

<210> 34
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 <212> PRT
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 peptide

<400> 34
 Leu Gly Phe Leu Gly Phe Leu Ala Thr Ala Gly Ser Ala Met Gly Ala
 1 5 10 15

Ala Ser Leu Val Thr Ala Gln Ser Arg Thr Leu Leu Ala Val Ile Val
 20 25 30

Gln Gln Gln Gln Gln Leu Leu Asp Val Val
 35 40

<210> 35
 <211> 40
 <212> PRT
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<220>
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 peptide

<400> 35

Glu Glu Ala Gln Ile Gln Gln Glu Lys Asn Met Tyr Glu Leu Trp Lys
 1 5 10 15

Leu Asn Trp Trp Asp Val Phe Gly Asn Trp Phe Asp Leu Thr Ser Trp
 20 25 30

Asp Leu Thr Ser Trp Ile Lys Tyr
 35 40

<210> 36

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 36

Leu Gly Ala Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala
 1 5 10 15

Ala Ala Val Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile
 20 25 30

Val Gln Gln Gln Asn Asn Leu Leu
 35 40

<210> 37

<211> 37

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 37

Glu Glu Ala Gln Ser Gln Gln Glu Lys Asn Glu Arg Asp Leu Leu Glu
 1 5 10 15

Leu Asp Gln Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Lys Trp
 20 25 30

Leu Trp Tyr Ile Lys
 35

<210> 38
 <211> 48
 <212> PRT
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<220>
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 peptide

<400> 38
 Gly Ile Gly Leu Val Ile Val Leu Ala Ile Met Ala Ile Ile Ala Ala
 1 5 10 15

Ala Gly Ala Gly Leu Gly Val Ala Asn Ala Val Gln Gln Ser Tyr Thr
 20 25 30

Arg Thr Ala Val Gly Ser Leu Ala Asn Ala Thr Ala Ala Gln Gln Glu
 35 40 45

<210> 39
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 <212> PRT
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 peptide

<400> 39
 Glu Ala Ala Leu Gln Val His Ile Ala Gln Arg Asp Ala Arg Arg Ile
 1 5 10 15

Pro Asp Ala Trp Lys Ala Ile Gln Glu Ala Phe Asn Asn Trp Ser Ser
 20 25 30

Trp Phe Ser Trp Leu Lys Tyr
 35

<210> 40
 <211> 40
 <212> PRT
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<220>
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 peptide

<400> 40
 Leu Gly Phe Leu Gly Phe Leu Ala Thr Ala Gly Ser Ala Met Gly Ala
 1 5 10 15

15

Arg Ser Leu Thr Leu Ser Ala Gln Ser Arg Thr Leu Leu Ala Gly Ile
20 25 30

Val Gln Gln Gln Gln Leu Leu
35 40

<210> 41
<211> 36
<212> PRT
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<220>
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peptide

<400> 41
Glu Glu Ala Gln Ile Gln Glu Lys Asn Met Tyr Glu Leu Gln Lys Leu
1 5 10 15

Asn Ser Trp Asp Ile Leu Gly Asn Trp Phe Asp Leu Ile Ser Trp Val
20 25 30

Lys Tyr Ile Gln
35

<210> 42
<211> 43
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 42
Trp Gly Pro Thr Ala Arg Ile Phe Ala Ser Ile Leu Ala Pro Gly Val
1 5 10 15

Ala Ala Ala Gln Ala Leu Arg Glu Ile Glu Arg Leu Ala Cys Trp Ser
20 25 30

Val Lys Gln Ala Asn Leu Thr Thr Ser Leu Leu
35 40

<210> 43
<211> 36
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 43

Lys	Phe	Gln	Leu	Met	Lys	Lys	His	Val	Asn	Lys	Ile	Gly	Val	Asp	Ser
1				5					10					15	

Asp	Pro	Ile	Gly	Ser	Trp	Leu	Arg	Gly	Ile	Phe	Gly	Gly	Ile	Gly	Glu
			20					25					30		

Trp	Ala	Val	His
			35

<210> 44

<400> 44
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<210> 45

<400> 45
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<210> 46

<211> 49

<212> PRT

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<400> 46

Gly	Leu	Ser	Leu	Ile	Ile	Leu	Gly	Ile	Val	Ser	Leu	Ile	Thr	Leu	Ile
1				5					10					15	

Ala	Thr	Ala	Val	Thr	Ala	Cys	Cys	Ser	Leu	Ala	Gln	Ser	Ile	Gln	Ala
			20					25					30		

Ala	His	Thr	Val	Asp	Leu	Ser	Ser	Gln	Asn	Val	Thr	Lys	Val	Met	Gly
			35				40					45			

Thr

<210> 47
 <211> 36
 <212> PRT
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<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 47
 Ile Glu Asn Ser Pro Lys Ala Thr Leu Asn Ile Ala Asp Thr Val Asp
 1 5 10 15

Asn Phe Leu Gln Asn Leu Phe Ser Asn Phe Pro Ser Leu His Ser Leu
 20 25 30

Asn Lys Thr Leu
 35

<210> 48
 <211> 49
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 48
 Ala Val Thr Leu Ile Pro Leu Leu Val Gly Leu Gly Val Ser Thr Ala
 1 5 10 15

Val Ala Thr Gly Thr Ala Gly Leu Gly Val Ala Val Gln Ser Tyr Thr
 20 25 30

Lys Leu Ser His Gln Leu Ile Asn Asp Val Gln Ala Leu Ser Ser Thr
 35 40 45

Ile

<210> 49
 <211> 34
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 49

Lys Ile Lys Asn Leu Gln Glu Asp Leu Glu Lys Arg Arg Lys Ala Leu
 1 5 10 15

Ala Asp Asn Leu Phe Leu Thr Gly Leu Asn Gly Leu Leu Pro Tyr Leu
 20 25 30

Leu Pro

<210> 50

<400> 50
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<210> 51

<211> 34

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
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<400> 51

Lys Ile Lys Asn Leu Gln Asp Asp Leu Glu Lys Arg Arg Lys Gln Leu
 1 5 10 15

Ile Asp Asn Pro Phe Trp Thr Gly Phe His Leu Leu Pro Tyr Val Met
 20 25 30

Pro Leu

<210> 52

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 52

Asp Pro Val Ser Leu Thr Val Ala Leu Leu Leu Gly Gly Leu Thr Met
 1 5 10 15

Gly Ser Leu Ala Ala Gly Ile Gly Thr Gly Thr Ala Ala Leu Ile Glu
 20 25 30

Thr Asn Gln Phe Lys Gln Leu Gln
 35 40

<210> 53
 <211> 35
 <212> PRT
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<220>
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<400> 53
 Ser Met Ala Lys Leu Arg Glu Arg Phe Lys Gln Arg Gln Lys Leu Phe
 1 5 10 15

Glu Ser Gln Gln Gly Gln Phe Glu Gly Trp Tyr Asn Lys Ser Pro Trp
 20 25 30

Glu Thr Thr
 35

<210> 54
 <211> 45
 <212> PRT
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<220>
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 peptide

<400> 54
 Ala Val Ser Leu Thr Leu Ala Val Leu Leu Gly Leu Gly Ile Thr Ala
 1 5 10 15

Gly Ile Gly Gly Ser Thr Ala Leu Ile Lys Gly Pro Ile Asp Leu Gln
 20 25 30

Gln Gly Leu Thr Ser Leu Gln Ile Ala Ile Asp Ala Asp
 35 40 45

<210> 55
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 <212> PRT
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<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

20

<400> 55

Ser Met Lys Lys Leu Lys Glu Lys Leu Asp Lys Arg Gln Leu Glu Arg
1 5 10 15

Gln Asp Ser Gln Asn Trp Tyr Glu Gly Trp Phe Asn Asn Trp Pro Trp
20 25 30

Phe Thr Thr
35

<210> 56

<211> 44

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 56

Glu Pro Val Ser Leu Thr Leu Ala Leu Leu Leu Gly Gly Leu Thr Met
1 5 10 15

Gly Gly Ile Ala Gly Val Gly Thr Gly Thr Thr Ala Leu Val Ala Thr
20 25 30

Gln Gln Phe Gln Gln Leu Gln Ala Ala Met His Asp
35 40

<210> 57

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 57

Ser Met Ala Lys Leu Arg Glu Arg Leu Ser Gln Arg Gln Lys Leu Phe
1 5 10 15

Glu Ser Gln Gln Gly Trp Phe Glu Gly Leu Phe Asn Lys Ser Pro Trp
20 25 30

Phe Thr Thr
35

<210> 58
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 <212> PRT
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<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 58
 Glu Pro Ile Ser Leu Thr Val Ala Leu Met Leu Gly Leu Thr Val Gly
 1 5 10 15

Gly Ile Ala Ala Gly Cys Gly Thr Gly Thr Lys Ala Leu Leu Glu Ala
 20 25 30

Gln Phe Leu Gln Leu Gln Met Gln Met His Thr Asp
 35 40

<210> 59
 <211> 35
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 59
 Asn Met Ala Lys Leu Arg Glu Arg Leu Lys Gln Arg Gln Gln Leu Phe
 1 5 10 15

Asp Ser Gln Gln Gly Trp Phe Glu Gly Trp Phe Asn Arg Ser Pro Trp
 20 25 30

Phe Thr Thr
 35

<210> 60
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<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 60
 Ser Pro Val Ala Ala Leu Thr Leu Gly Leu Ala Leu Ser Val Gly Leu
 1 5 10 15

Thr Gly Ile Asn Val Ala Val Ser Ala Leu Ser His Gln Arg Leu Thr
 20 25 30

Ser Leu Ile His Val Leu Glu Gln Asp Gln Gln
 35 40

<210> 61
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 61
 Pro Leu Ser Gln Arg Val Ser Thr Asp Trp Gln Trp Pro Trp Asn Trp
 1 5 10 15

Asp Leu Gly Leu Thr Ala Trp Val Arg Glu Thr
 20 25

<210> 62
 <211> 37
 <212> PRT
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<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 62
 Ala Val Pro Val Ala Trp Leu Val Ser Ala Leu Ala Met Gly Ala Gly
 1 5 10 15

Val Ala Gly Gly Ile Thr Gly Ser Met Ser Leu Ala Ser Gly Lys Ser
 20 25 30

Leu Leu His Glu Val
 35

<210> 63
 <211> 34
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 63

Pro Ile Leu Gln Glu Arg Pro Pro Leu Glu Asn Arg Val Leu Thr Gly
 1 5 10 15

Trp Gly Leu Asn Trp Asp Leu Gly Leu Ser Gln Trp Ala Arg Glu Ala
 20 25 30

Leu Gln

<210> 64

<211> 39

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic peptide

<400> 64

Ala Val Pro Ile Ala Val Trp Ser Val Ser Ala Leu Ala Ala Gly Thr
 1 5 10 15

Gly Ile Ala Gly Gly Val Thr Gly Ser Leu Ser Leu Ala Ser Ser Lys
 20 25 30

Ser Leu Leu Leu Glu Val Asp
 35

<210> 65

<211> 34

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 65

Ser Val Leu Gln Glu Arg Pro Pro Leu Glu Lys Arg Val Ile Thr Gly
 1 5 10 15

Trp Gly Leu Asn Trp Asp Leu Gly Leu Ser Gln Trp Ala Arg Glu Ala
 20 25 30

Leu Gln

<210> 66
 <211> 46
 <212> PRT
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<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 66
 Phe Pro Asn Ile Asn Glu Asn Thr Ala Tyr Ser Gly Glu Asn Glu Asn
 1 5 10 15

Asp Cys Asp Ala Glu Leu Arg Ile Trp Ser Val Gln Glu Asp Asp Leu
 20 25 30

Ala Ala Gly Leu Ser Trp Ile Pro Phe Phe Gly Pro Gly Ile
 35 40 45

<210> 67
 <211> 33
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 67
 Lys Asn Ile Ser Glu Gln Ile Asp Gln Ile Lys Lys Asp Glu Gln Lys
 1 5 10 15

Ile Gly Arg Gly Trp Gly Leu Gly Gly Lys Trp Trp Thr Ser Asp Trp
 20 25 30

Gly

<210> 68
 <211> 47
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 68
 Leu Ile Thr Gly Gly Arg Arg Thr Arg Arg Glu Ala Ile Val Asn Ala
 1 5 10 15

25

Gln Pro Lys Cys Asn Pro Asn Leu His Tyr Trp Thr Gln Asp Glu Gly
20 25 30

Ala Ala Ile Gly Leu Ala Trp Ile Pro Tyr Phe Gly Pro Ala Ala
35 40 45

<210> 69

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 69

Lys Asn Ile Thr Asp Lys Ile Asp Gln Ile Ile His Asp Phe Val Asp
1 5 10 15

Lys Thr Leu Pro Asp Gln Gly Asp Asn Asp Asn Trp Trp Thr Gly Trp
20 25 30

Arg Gln Trp Ile
35

<210> 70

<211> 47

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 70

Leu Ile Thr Gly Arg Leu Gln Ser Leu Gln Thr Tyr Val Thr Gln Gln
1 5 10 15

Leu Ile Arg Ala Ala Glu Ile Arg Ala Ser Ala Asn Leu Ala Ala Thr
20 25 30

Lys Met Ser Glu Cys Val Leu Gly Gln Ser Lys Arg Val Asp Phe
35 40 45

<210> 71

<211> 33

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 71

Asp	Arg	Leu	Asn	Glu	Val	Ala	Lys	Asn	Leu	Asn	Glu	Ser	Leu	Ile	Asp
1				5					10					15	

Leu	Gln	Glu	Leu	Lys	Tyr	Glu	Gln	Tyr	Glu	Lys	Trp	Pro	Trp	Tyr	Val
			20					25					30		

Trp

<210> 72

<211> 44

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 72

Gly	Leu	Phe	Gly	Ala	Ile	Ala	Gly	Phe	Ile	Glu	Asn	Gly	Trp	Glu	Gly
1				5					10					15	

Met	Ile	Asp	Gly	Trp	Tyr	Gly	Phe	Arg	His	Gln	Asn	Ser	Glu	Gly	Thr
			20					25					30		

Gly	Gln	Ala	Ala	Asp	Leu	Lys	Ser	Thr	Gln	Ala	Ala
			35					40			

<210> 73

<211> 33

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 73

His	Asp	Val	Tyr	Arg	Asp	Glu	Ala	Leu	Asn	Asn	Arg	Phe	Gln	Ile	Lys
1				5					10					15	

Gly	Val	Glu	Leu	Lys	Ser	Gly	Tyr	Lys	Asp	Trp	Ile	Leu	Ile	Ser	Phe
			20					25					30		

Ala

<210> 74
 <211> 45
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 74
 Phe Ala Gly Val Val Leu Ala Gly Ala Ala Leu Gly Val Ala Thr Ala
 1 5 10 15

Ala Gln Ile Thr Ala Gly Ile Ala Leu His Gln Ser Met Leu Ser Ser
 20 25 30

Gln Ala Ile Asp Asn Leu Arg Ala Ser Leu Glu Thr Thr
 35 40 45

<210> 75
 <211> 31
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 75
 Ile Ala Lys Leu Glu Asp Ala Lys Glu Leu Leu Glu Ser Ser Lys Gln
 1 5 10 15

Ile Leu Arg Ser Met Lys Gly Leu Ser Ser Thr Ser Ile Val Tyr
 20 25 30

<210> 76
 <211> 46
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 76
 Phe Ala Gly Ile Ala Ile Gly Ile Ala Ala Leu Gly Val Ala Thr Ala
 1 5 10 15

Ala Gln Val Thr Ala Ala Val Ser Leu Val Gln Ala Gln Thr Asn Ala
 20 25 30

Arg Ala Ala Ala Met Lys Asn Ser Ile Gln Thr Asn Arg Ala
 35 40 45

<210> 77
 <211> 32
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 77
 Thr Glu Leu Ser Lys Val Asn Ala Ser Leu Gln Asn Ala Val Lys Gln
 1 5 10 15

Ile Lys Glu Ser Asn His Gln Leu Gln Ser Val Ser Val Ser Ser Lys
 20 25 30

<210> 78
 <211> 46
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 78
 Phe Phe Gly Ala Val Ile Gly Thr Ile Ala Leu Gly Val Ala Thr Ala
 1 5 10 15

Ala Gln Ile Thr Ala Gly Ile Ala Leu Ala Glu Ala Arg Glu Ala Arg
 20 25 30

Lys Asp Ile Ala Leu Ile Lys Asp Ser Ile Val Lys Thr His
 35 40 45

<210> 79
 <211> 30
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 79

Thr Asn Phe Leu Glu Glu Ser Lys Thr Glu Leu Met Lys Ala Arg Ala
 1 5 10 15

Ile Ile Ser Val Gly Gly Trp His Asn Thr Glu Ser Thr Gln
 20 25 30

<210> 80

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 80

Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val Thr Leu Thr
 1 5 10 15

Val Gln Ala Arg Leu Leu Leu Ser
 20

<210> 81

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 81

Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn
 1 5 10 15

Trp Phe Asp Ile Thr Asn Trp Leu
 20

<210> 82

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 82

Leu Ile Thr Gln Ala Arg Gln Leu Leu Ser Asp Ile Val Gln Gln Gln
 1 5 10 15

Arg Ile Val Thr Glu Asp Leu Gln Ala Leu Glu Lys Ser Val Ser Asn
20 25 30

Leu Glu Glu Ser Leu Thr Ser Leu Ser Glu Val Val Leu Gln Asn Arg
35 40 45

Arg Gly Leu Asp Leu Leu Phe Leu Lys Lys Glu Gly Leu Cys Val Ala
50 55 60

Leu Lys Glu Glu Cys Cys Phe Tyr Val Asp His Ser Gly Ala Ile Arg
65 70 75 80

Asp Ser Met Ser Lys Leu Arg Glu Arg Leu Glu Arg Arg Arg Arg Glu
85 90 95

Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn
100 105

<210> 83
<211> 124
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 83
Leu Ile Thr Gly Ala Ser Val Thr Leu Thr Val Gln Ala Arg Gln Leu
1 5 10 15

Leu Ser Asp Ile Val Gln Gln Gln Arg Ile Val Thr Glu Asp Leu Gln
20 25 30

Ala Leu Glu Lys Ser Val Ser Asn Leu Glu Glu Ser Leu Thr Ser Leu
35 40 45

Ser Glu Val Val Leu Gln Asn Arg Arg Gly Leu Asp Leu Leu Phe Leu
50 55 60

Lys Lys Glu Gly Leu Cys Val Ala Leu Lys Glu Glu Cys Cys Phe Tyr
65 70 75 80

Val Asp His Ser Gly Ala Ile Arg Asp Ser Met Ser Lys Leu Arg Glu
85 90 95

Arg Leu Glu Arg Arg Arg Arg Glu Glu Leu Asp Lys Trp Ala Ser Leu
100 105 110

Trp Asn Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr
115 120

<210> 84

<211> 53

<212> PRT

<213> Artificial Sequence

 $\langle 220 \rangle$

<223> Description of Artificial Sequence: Synthetic peptide

<400> 84

Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val Thr Leu Thr
1 5 10 15

Val Gln Ala Arg Leu Leu Leu Ser Ser Ser Pro Ser Ser Asn Glu Gln
20 25 30

Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe Asp
35 40 45

Ile Thr Asn Trp Leu
50

<210> 85

$\langle 211 \rangle$ 154

<212> PRT

<213> Artificial Sequence

 $\langle 220 \rangle$

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 85

Met Gly Cys Thr Ser Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu
1 5 10 15

Ser Asp Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala
20 25 30

Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln
35 40 45

Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln Leu Leu
 50 55 60

Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala Val Pro
 65 70 75 80

Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp Asn Asn
 85 90 95

Met Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr Ser Leu
 100 105 110

Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys Asn Glu
 115 120 125

Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn Trp Phe
 130 135 140

Asn Ile Thr Asn Trp Leu Trp Tyr Ile Lys
 145 150

<210> 86
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 86
 Ala Ala Ser Val Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser
 1 5 10 15

<210> 87
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 87
 Ala Ala Ala Ala Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser
 1 5 10 15

<210> 88
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 88
Ala Ala Ser Val Ala Ala Thr Val Gln Ala Arg Leu Leu Leu Ser
1 5 10 15

<210> 89
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 89
Ala Ala Ser Val Thr Leu Ala Ala Gln Ala Arg Leu Leu Leu Ser
1 5 10 15

<210> 90
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 90
Ala Ala Ser Val Thr Leu Thr Val Ala Ala Arg Leu Leu Leu Ser
1 5 10 15

<210> 91
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 91
Ala Ala Ser Val Thr Leu Thr Val Gln Ala Ala Ala Leu Leu Ser
1 5 10 15

<210> 92
 <211> 24
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 92
 Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val Thr Leu Thr
 1 5 10 15

Val Gln Ala Arg Leu Leu Leu Ser
 20

<210> 93
 <211> 24
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 93
 Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn
 1 5 10 15

Trp Phe Asp Ile Thr Asn Trp Leu
 20

<210> 94
 <211> 45
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 94
 Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Arg Ser
 1 5 10 15

Met Thr Leu Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln
 20 25 30

Gln Gln Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln
 35 40 45

<210> 95
 <211> 45
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 95
 Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Met Thr Leu
 1 5 10 15

Thr Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Asn
 20 25 30

Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu
 35 40 45

<210> 96
 <211> 45
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 96
 Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val Thr Leu
 1 5 10 15

Thr Val Gln Ala Arg Leu Leu Leu Ser Gly Ile Val Gln Gln Gln Asn
 20 25 30

Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Met Leu
 35 40 45

<210> 97
 <211> 33
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 97
 Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp
 1 5 10 15

Lys Trp Ala Gly Leu Trp Ser Trp Phe Ser Ile Thr Asn Trp Leu Trp
 20 25 30

Tyr

<210> 98
 <211> 33
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 98
 Ser Gln Asn Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp
 1 5 10 15

Lys Trp Ala Ser Leu Trp Asn Trp Phe Asn Ile Thr Asn Trp Leu Trp
 20 25 30

Tyr

<210> 99
 <211> 33
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 99
 Ser Gln Thr Gln Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp
 1 5 10 15

Lys Trp Ala Ser Leu Trp Asn Trp Phe Asp Ile Thr Asn Trp Leu Trp
 20 25 30

Tyr

<210> 100
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 100

Leu	Glu	Thr	Ala	Gln	Phe	Arg	Gln	Leu	Gln	Met	Ala	Met	His	Thr	Asp
1				5				10						15	

Ile	Gln	Ala	Leu	Glu	Glu	Ser	Ile	Ser	Ala	Leu	Glu	Lys	Ser	Leu	Thr
			20					25					30		

Ser	Leu	Ser	Glu	Val	Val	Leu	Gln	Asn	Arg	Arg	Gly	Leu	Asp	Ile	Leu
		35					40					45			

Phe	Leu	Gln	Glu	Gly	Gly	Leu	Cys	Ala	Ala	Leu	Lys	Glu	Glu	Cys	Cys
	50					55					60				

Phe	Tyr	Ala	Asp	His	Thr	Gly	Leu	Val	Arg	Asp	Asn	Met	Ala	Lys	Leu
65					70					75					80

Arg	Glu	Arg	Leu	Lys	Gln	Arg	Gln	Gln	Leu	Phe	Asp	Ser	Gln	Gln	Gly
				85					90					95	

Trp	Phe	Glu	Gly	Trp	Phe	Asn	Lys	Ser	Pro	Trp
		100						105		

<210> 101

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 101

Thr	Ala	Ala	Leu	Ile	Thr	Gly	Pro	Gln	Gln	Leu	Glu	Lys	Gly	Leu	Ser
1				5				10						15	

Asn	Leu	His	Arg	Ile	Val	Thr	Glu	Asp	Leu	Gln	Ala	Leu	Glu	Lys	Ser
			20					25					30		

Val	Ser	Asn	Leu
		35	

<210> 102
 <211> 37
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 102
 Asp His Ser Gly Ala Ile Arg Asp Ser Met Ser Lys Leu Arg Glu Arg
 1 5 10 15

Leu Glu Arg Arg Arg Arg Glu Arg Glu Ala Asp Gln Gly Trp Phe Glu
 20 25 30

Gly Trp Phe Asn Arg
 35

<210> 103
 <211> 37
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 103
 Thr Ala Leu Ile Lys Gly Pro Ile Asp Leu Gln Gln Gly Leu Thr Ser
 1 5 10 15

Leu Gln Ile Ala Met Asp Thr Asp Leu Arg Ala Leu Gln Asp Ser Ile
 20 25 30

Ser Lys Leu Glu Asp
 35

<210> 104
 <211> 35
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 104
 Ser Met Arg Arg Leu Lys Glu Arg Leu Asp Lys Arg Gln Leu Glu His
 1 5 10 15

Gln Lys Asn Leu Ser Trp Tyr Glu Gly Trp Phe Asn Arg Ser Pro Trp
 20 25 30

Leu Thr Thr
 35

<210> 105
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 105
 Glu Leu Asp Lys Trp Ala
 1 5

<210> 106
 <211> 34
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 106
 Lys Ala Leu Leu Glu Ala Gln Phe Arg Leu Gln Leu Gln Met Gln Met
 1 5 10 15

His Thr Asp Ile Gln Ala Leu Glu Glu Ser Ile Ser Ala Leu Glu Lys
 20 25 30

Ser Leu

<210> 107
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 107
 cgcggatcca tgggctgcac gtcaatgacg ctg

<210> 108
 <211> 37
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 108
 caccgatac tcgagatacc acagccaatt tggttatg 37

<210> 109
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 109
 cgcccatccc taatcacaca agcgagacag ctg 33

<210> 110
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 110
 caccgatac tcgagtcagt tgaaccagtt ccaaag 36

<210> 111
 <211> 64
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 111
 caagcgagac agctgagtga tattgttcag caacaacgaa ttgtaacgga agatctccaa 60

gccc 64

<210> 112
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 112

ttgttgctga acaatatcac tcagcagctg tctcgcttgt gtgattaggg atccacgcgg 60

<210> 113

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 113

gaactggata agtgggcgctc gctttggaac tggttcaact gagaattcag actccagggg 60

tcgactcgag c

71

<210> 114

<211> 59

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 114

gttccaaagc cagcccaact tatccagttc ttcccttcga cgctctctta acctttctc 59

<210> 115

<211> 59

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 115

cgggatccgg agcatcagta acgctgacgg tacagcggag acaatattgt gtgatatag 59

<210> 116

<211> 61

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
primer

<400> 116
 cgctcgagct aataccacag ccaatttctt atgttaaacc aattccacaa acttgcccat 60
 t 61

<210> 117
 <211> 98
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 117
 ggggatccca gccattggag atgtcgaacc agttccacaa gaagcccatt tgtccagttc 60
 cagcagttcc tggtcgtag aagacggaga agaagaca 98

<210> 118
 <211> 100
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 118
 ccggatccct ggggtgctgct ggttctacca tgggtgctgc ttctgttacc ctgaccgttc 60
 aggctcgtct gctgctgtct tcttctccgt cttctaacga 100

<210> 119
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 119
 gcggatccct tgaaacagcc cagttcagac aa 32

<210> 120
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 120
cggaattccc aggggggactt gttgaaccat cc

32

<210> 121
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 121
Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp
1 5 10 15

<210> 122
<211> 345
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 122
Ala Val Gly Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly
1 5 10 15

Ser Thr Met Gly Cys Thr Ser Met Thr Leu Thr Val Gln Ala Arg Gln
20 25 30

Leu Leu Ser Asp Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala Ile
35 40 45

Glu Ala Gln Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln
50 55 60

Leu Gln Ala Arg Ile Leu Ala Val Glu Arg Tyr Leu Lys Asp Gln Gln
65 70 75 80

Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu Ile Cys Thr Thr Ala
85 90 95

Val Pro Trp Asn Ala Ser Trp Ser Asn Lys Ser Leu Glu Gln Ile Trp
100 105 110

Asn Asn Met Thr Trp Met Glu Trp Asp Arg Glu Ile Asn Asn Tyr Thr
115 120 125

Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln Gln Glu Lys
 130 135 140

Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser Leu Trp Asn
 145 150 155 160

Trp Phe Asn Ile Thr Asn Trp Leu Trp Tyr Ile Lys Leu Phe Ile Met
 165 170 175

Ile Val Gly Gly Leu Val Gly Leu Arg Ile Val Phe Ala Val Leu Ser
 180 185 190

Ile Val Asn Arg Val Arg Gln Gly Tyr Ser Pro Leu Ser Phe Gln Thr
 195 200 205

His Leu Pro Ile Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu
 210 215 220

Glu Gly Gly Glu Arg Asp Arg Asp Arg Ser Ile Arg Leu Val Asn Gly
 225 230 235 240

Ser Leu Ala Leu Ile Trp Asp Asp Leu Arg Ser Leu Cys Leu Phe Ser
 245 250 255

Tyr His Arg Leu Arg Asp Leu Leu Leu Ile Val Thr Arg Ile Val Glu
 260 265 270

Leu Leu Gly Arg Arg Gly Trp Glu Ala Leu Lys Tyr Trp Trp Asn Leu
 275 280 285

Leu Gln Tyr Trp Ser Gln Glu Leu Lys Asn Ser Ala Val Asn Leu Leu
 290 295 300

Asn Ala Thr Ala Ile Ala Val Ala Glu Gly Thr Asp Arg Val Ile Glu
 305 310 315 320

Val Leu Gln Ala Ala Tyr Arg Ala Ile Arg His Ile Pro Arg Arg Ile
 325 330 335

Arg Gln Gly Leu Glu Arg Ile Leu Leu
 340 345

<210> 123
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 123
 Gln Arg Glu Lys Arg Ala Ala Ile Gly Ala Leu Phe Leu Gly Phe
 1 5 10 15

<210> 124
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 124
 Arg Ala Ala Ile Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala
 1 5 10 15

<210> 125
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 125
 Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met
 1 5 10 15

<210> 126
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 126
 Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser
 1 5 10 15

<210> 127
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 127
 Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Val Thr Leu Thr
 1 5 10 15

<210> 128
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 128
 Ser Thr Met Gly Ala Ala Ser Val Thr Leu Thr Val Gln Ala Arg
 1 5 10 15

<210> 129
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 129
 Ala Ala Ser Val Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser
 1 5 10 15

<210> 130
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 130
 Thr Leu Thr Val Gln Ala Arg Leu Leu Leu Ser Gly Ile Val Gln
 1 5 10 15

<210> 131
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 131
 Gln Ala Arg Leu Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn
 1 5 10 15

<210> 132
 <211> 15
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 132
 Leu Leu Ser Gly Ile Val Gln Gln Gln Asn Asn Leu Leu Arg Ala
 1 5 10 15

<210> 133
 <211> 37
 <212> PRT
 <213> Human immunodeficiency virus type 1

<400> 133
 Asn Asn Leu Leu Arg Ala Ile Glu Ala Gln Gln His Leu Leu Gln Leu
 1 5 10 15

Thr Val Trp Gly Ile Lys Gln Leu Gln Ala Arg Ile Leu Ala Val Glu
 20 25 30

Arg Tyr Lys Asp Gln
 35

<210> 134
 <211> 114
 <212> PRT
 <213> Feline leukemia virus

<400> 134
 Lys Ala Leu Leu Glu Thr Ala Gln Phe Arg Gln Leu Gln Met Ala Met
 1 5 10 15

His Thr Asp Ile Gln Ala Leu Glu Glu Ser Ile Ser Ala Leu Glu Lys
 20 25 30

Ser Leu Thr Ser Leu Ser Glu Val Val Leu Gln Asn Arg Arg Gly Leu
 35 40 45

Asp Ile Leu Phe Leu Gln Glu Gly Gly Leu Cys Ala Ala Leu Lys Glu
 50 55 60

Glu Cys Cys Phe Tyr Ala Asp His Thr Gly Leu Val Arg Asp Asn Met
 65 70 75 80

Ala Lys Leu Arg Glu Arg Leu Lys Gln Arg Gln Gln Leu Phe Asp Ser
 85 90 95

Gln Gln Gly Trp Phe Glu Gly Trp Phe Asn Lys Ser Pro Trp Phe Thr
 100 105 110

Thr Leu

<210> 135
 <211> 38
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 135
 Asp His Ser Gly Ala Ile Arg Asp Ser Met Ser Lys Leu Arg Glu Arg
 1 5 10 15

Leu Glu Arg Arg Arg Arg Glu Arg Glu Ala Asp Gln Gly Trp Phe Glu
 20 25 30

Gly Trp Phe Asn Arg Ser
35